BULGARIAN BROWNFIELD PRIVATIZATION AND FIRM PERFORMANCE

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Executive Summary

By using panel data for a sample of Bulgarian manufacturing firms this paper investigates the impact of the privatization process. All sample firms started under state control and many have now been privatized, mainly during the last few years. Our data enable us to use dynamic panel data methods and estimate a number of specifications to rigorously analyze the impact of privatization, and in particular insider privatization. Contrary to mainstream theory (e.g. Boycko et al., 1996) and the findings of an influential recent empirical survey (Djankov and Murrell, 2002), our results show no difference on firm performance for insider versus other methods of privatization

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Introduction

Understanding the determinants of business performance in transition economies is a key policy question that continues to confront researchers and policy makers alike. As noted in an influential recent essay (Djankov and Murrell, 2002), while a large literature has emerged in this general area, several matters still remain on the research agenda. In part this state of affairs reflects the fact that the geographical coverage of studies is rather uneven. Also, the reliability of much evidence is potentially affected by the underlying quality of the data and the ability of researchers to seriously tackle enduring econometric issues. Furthermore, more reliable empirical evidence on these matters is needed because there continues to be a clear gap between mainstream theory and empirics.

Most theorists (e.g. Boycko et al. 1996) accept the proposition that the preferred ownership structure for privately owned firms is outside (rather then inside) ownership and the most efficient form of insider ownership is manager (rather than employee) ownership (Aghion and Blanchard, 1998). In addition, based mainly on their empirical work, some researchers reach conclusions that provide broad support for some of these propositions (e.g. Frydman et al., 1999) for transition economies and De Mello, (1997) for developing economies.) However, not only is theory in fact ambiguous on some of these matters, not all conclusions derived from surveys of the available empirical evidence provide strong support for these hypotheses.[1]

Another reason why these matters loom large, especially in transition economies (and including Bulgaria), is that an important feature of the privatization process has been the emergence of widespread insider ownership (Uvalic and Vaughan-Whitehead, 1998; Fitzroy et al. 1998.) However, since privatization in transition economies has often been driven by political

considerations, the ownership structures that initially emerged after privatization often were not viewed by most economists with particular concern. While such ownership structures might be judged to be "inefficient," these ownership configurations were believed to be only temporary, disequilibrium arrangements. As secondary markets emerged, asset reallocation would quickly take place so that efficient structures of ownership would soon emerge (with assets transferred to the hands of owners who would allocate to better uses).

However, it appears that often insider ownership has proved to be a much more *resilient* phenomenon than was anticipated (Estrin and Wright, 1999). Consequently, it has been argued that a crucial need for many transition countries are new policies to change the environment which permits insider ownership to continue (Aghion and Blanchard, 1998).

Against this backdrop, in this paper we report initial findings based on our attempts to assemble a large and long panel for heterogeneous enterprises in Bulgaria. These new data enable testing of evidence on important hypotheses concerning the impact of privatization on business performance for the comparatively neglected case of Bulgaria.[2] The paper builds on previous work in which data for a stratified random sample of 490 state-owned and formerly-state-owned manufacturing establishments were gathered. In that earlier work enterprises were surveyed in four waves producing a panel containing annual data for firms and managers for 1989 -1996. In this paper we make use of new waves of annual economic data for a subset of the original panel for five years since the last wave of data collection, namely for 1997-2001.

Since the economic crisis in Bulgaria of 1996-97, a number of changes have occurred including the start of serious privatization (Miller and Petranov, 2000), firm liquidations, the introduction of a currency board and banking reform. These changes show up in our original sample. We estimate that by the end of 2001, a third or more of our original sample

establishments were bankrupt and more than 60% had been privatized. Moreover, these data show that privatization has produced very different forms of private ownership in sample firms with, for example, some enterprises owned by insiders (managers, employees) and others by different types of outsiders.

By using the new economic data for firms from the original sample that still survive and for which we were able to assemble complete records, we provide evidence on some of the key determinants of business performance during the period 1997-2001. Specifically we are able to follow 240 firms during this period and analyze the impact that privatization, and the type of privatization, had on a number of performance measures. This panel is used to estimate diverse specifications including OLS fixed effects models and, to correct for potential problems of endogeneity, instrumental variable estimates of dynamic panel data models. Our findings do not provide strong support for key propositions associated with the standard theory of privatization concerning the preferred forms of corporate governance in private firms.

II. The Impact of Ownership on Business Performance: Hypotheses

To consider issues surrounding the preferred form of privatization, the dominant approach in the corporate governance literature classifies firms by ownership (see, e.g. Schleifer and Vishny, 1997). For reasons including greater ease in raising new capital and a better ability to pay for necessary expenditures, it is argued that restructuring requires ownership by outsiders (Aghion and Blanchard, 1998). However, it is recognized that new private owners may fail to ensure proper control of management. For example, mass privatization schemes could lead to

diffuse private ownership by small outside shareholders that often lack the means and incentives to restructure and monitor firms (Pohl et al., 1997). Therefore concentrated private ownership by outsiders is often argued to be the preferred form of privatization.

When insiders dominate, it is argued that the most efficient form of insider ownership is managerial (rather than worker) ownership (e.g Boycko et al., 1996). The conclusion that firms owned by their workers will have inferior economic performance is based in part on the argument that the perceived interests of enterprise workers are likely to conflict in important respects with the long-run interests of their enterprise leading to underinvestment in capital equipment. Also, worker-owners are expected to expend little effort and to resist layoffs leading to low productivity. Consequently, the conventional wisdom is that significant employee ownership will have detrimental effects on enterprise performance and undermine the ability of newly-privatized firms to undertake meaningful restructuring (Frydman et al., 1993). However, there are several theoretical and empirical reasons why these conclusions may not always be most appropriate for transition economies.[3]

To begin with, on closer examination, formal economic theory is found to yield no clear cut predictions concerning the preferred form of ownership in transition economies. Thus critics question whether stock markets actually perform their intended functions effectively, especially in the context of formerly centrally planned economies with very underdeveloped capital market institutions. Aoki and Kim (1995) note that much of the traditional analysis assumes an idealized view of advanced market economies and that the argument for the promotion of outside ownership and efficient securities markets ignores crucial matters such as inherited factors and assumes competitive product and labor markets. In the context of transition economies, Earle and

Estrin (1996) also argue that the effects of employee ownership may be dependent on a host of factors such as market conditions. In particular cases, some forms of employee ownership may be a feasible solution to the choice of ownership structure.

More generally, some types of insider-owned structures, can be justified on several grounds (Ben-Ner, 1993; Weitzman, 1993; Stiglitz, 1999). Advocates of insider owned and controlled firms argue that such firms are more likely to be characterized by a focused, tightly-knit, flesh and blood ownership group with a strong stake in enterprise performance--as compared with the alternative of external ownership of joint stock companies.

In such firms, the security and stability of the enterprise and its work force will weigh more heavily in decision-making. Arguably insider ownership and insider control is more conducive to enterprise stability and long term employment relationships and thus may contribute to better economic performance in a number of ways. Also, greater enterprise stability may encourage more salvaging of still useful capital stock, and it may help to avoid a cascade of business failures due to the shutdown of one key enterprise in a productive structure still characterized by an inflexible network of input sources and output outlets.

The closer alignment of the goals of different economic agents within insiderowned firms (what Stiglitz, 1999 calls "privatization to stakeholders") may better motivate workers to join in restructuring efforts and to better use their accumulated experience and firm-specific knowledge. Ownership by non-managerial employees (as well as managers) may thus be expected to lead to enhanced productivity and, at some point, enterprise success will be reflected in a higher stock price. In such cases, the interest of the firm is more aligned with the interest of its employees. For several reasons, these interest alignment effects can be expected to be more significant in

firms in which the precise institutional arrangements enable broad participation by employees (and are not restricted to executives) and in which employee ownership constitutes a significant part of the average employees' wealth.[4]

III. Bulgarian Economic Reforms

The Bulgarian transition continues to be a most difficult one. During the early years of transition, compared to many other transition countries (especially potential EU accession countries), Bulgaria faced unfavorable initial conditions. These included the impact of United Nations sanctions against Yugoslavia and Iraq that hurt Bulgaria more than many counties and high external indebtedness. But there were also substantial policy errors (including limited restructuring and high levels of corruption) which combined to produce high inflation, little foreign direct investment, collapse of traditional markets, and a dampening impact on economic progress. Not until 1994 was there positive economic growth, and even that was short-lived culminating in a massive financial crisis in 1996-1997.

The financial implosion of 1996-1997 was followed by the establishment of a Currency Board and significant structural and changes and institutional reforms. These initiatives have led to visible and sustained improvements in some important dimensions of the macroeconomic context.[5] Thus the last few years have seen positive economic growth and a much lower inflation rate. However, the level of real GDP is still only about 85% of the 1989 level. Moreover, the labor market is beset with many profound problems including an official unemployment rate that currently in close to 15% and which during the last several years has hovered officially in the mid to upper teens.[6]

Since our econometric work hinges on differences in ownership structures, it is important to consider key aspects of the legal institutional changes that have occurred in Bulgaria in recent years. Compared to other cases (including Russia and also those of Poland, Hungary and the Czech Republic), developments in transition economies such as Bulgaria in general received much less attention, and also much less is known about them.

Throughout the first half of the 1990's, and largely reflecting an unstable political environment with large and frequent shifts in government policies, privatization in Bulgaria proceeded very slowly. Indeed during 1992-1997 it is estimated that at most seven percent of state assets were privatized (Miller and Petranov, 2000). Thereafter a series of privatization initiatives were introduced. These included a program of mass privatization that closely followed the Czech scheme and included provisions for the establishment of investment funds and privatization auctions. A quickening of the pace of privatization is also indicated by the use of other privatization vehicles including cash and insider privatization. Insider privatization followed a similar pattern as overall privatization, but with a slightly more sustained pattern.

The upshot of these initiatives was to dramatically accelerate the pace at which privatization proceeded and the extent to which the economy became privately owned—more than 60% by the end of the millennium. In addition, there was dramatic evidence of the emergence of significant concentration of ownership in individual Bulgarian firms. Furthermore, there is evidence of the emergence of significant diversity in the patterns of ownership in Bulgarian firms. This is exemplified by the emergence of privatized firms in which insiders as well as different types of outsiders (including privatization funds and individuals who did not work in the firm) hold majority ownership, sometimes in the same industry.

III. Data and Empirical Strategy

The data we analyze were collected from several different sources. Our latest data came from a survey of firms administered in the Spring and Fall of 2002 and from the National Statistical Institute of Bulgaria. The firms were originally selected back in 1990 to represent a random sample of industrial firms across regions and industry. Out of our original sample of 490 companies, 344 are still operating, 26 are either drafting a restructuring plan or proceeding with one, while another 72 have been or are in the process of being liquidated (see Table 1).[7]

The data we use essentially represent new waves of data collection from several sources as used and described in earlier studies (e.g. Jones, Klinedinst and Rock, 1999 for an earlier study of the determinants of productive efficiency in Bulgaria.) The main sources are the Bulgarian Management Survey (BMS), the Bulgarian Economic Survey (BES) and the Bulgarian Labor Flexibility Survey (BLFS).

The BLFS was a project sponsored by the ILO to assess microeconomic changes in labor practices in Bulgarian industry. The BLFS involved 490 establishments, selected to ensure a nationally and sectorally representative sample. Specifically, the population was defined as all stateowned (in 1989). Included in the sample were Bulgarian manufacturing organizations (SOE's) that operated on a for profit basis and had more than 80 employees in 1992, the year of the first wave of data collection.[8] Subsequent waves of data collection took place in 1994 and in 1996. For this study we collected data on all surviving firms from that sample for the period 1997-2001.

The original BMS collected survey data from chief executive officers in the same 490 Bulgarian firms. A wide variety of questions were asked including information about chief executives, including pay and the method and terms of appointment. Data were also gathered

concerning some firm characteristics, for example the form of enterprise ownership. For this study a new survey was designed (though there was considerable overlap in questionnaire design from earlier waves) and administered during 2002.

The data that we use in this paper are essentially drawn for the current waves of data collection. The nature of these data inevitably influences the empirical strategy that we are able to undertake at this time. Importantly, our data constitute a panel and are also quite rich in important respects. For example, we are able to construct diverse measures of key variables such as capital and labor.

This is potentially important in enabling us to respond both to the well-known problems surrounding the appropriate way to measure these crucial variables and difficulties that might emerge because of concerns associated with the reliability of accounting information in transition countries. In addition, our data enable us to construct a wide range of instrumental variables. All-in-all, this enables us to undertake a number of different specifications in our quest to rigorously analyze the impact of privatization on business performance.

In addition, we aim to use an approach that will allow for some degree of comparability with other studies that have investigated similar problems (Djankov and Murrell, 2002). A number of studies on transition problems, including some on Bulgaria (e.g., Jones, Klinedinst and Rock, 1998), have used the production function framework to try and isolate specific hypotheses relating only to measures of output. Other researchers have used a broader range of

performance measures (e.g., Frydman et al. 2001) and also examined a number of different

hypotheses not only on ownership per se but also on matters such as ownership concentration

and competition. Generally the functional forms estimated can be posited as:

$$\mathbf{Y_{it}=\alpha_i + \gamma X_{it}+\beta P_{it-1}+\varepsilon_{it}} \qquad\qquad (1)$$

In many studies, value added is the chosen performance indicator (Y_{it}), though typically

this approach is followed only if estimates of capital and labor are available. The X matrix

would represent contemporaneous policy variables and factors such as capital and labor services

in the production function estimate, with the policy variables that have a lagged impact in the P

matrix. Frydman et al. (1999), among others, have used other dependent variables to measure

firm performance such as sales, profits, and average labor productivity.

In this paper we use four different dependent variables to gauge firm performance: value

added, sales, average product of labor, and labor (see the appendix for a description of the

variables). The intercept, α_i, captures firm specific factors which may be otherwise unseen, while

the X matrix contains time dummies to capture exogenous contemporaneous shocks. The use of

firm specific intercepts helps to eliminate the selection bias that may be due, for example, to

larger firms having a greater propensity to privatize given better political and credit resources.

The competitive position of the firm is captured by including the marketshare of each

firm (the sales of firms here represent about 20 percent of Bulgarian industry). Marketshare's

inclusion is especially important when the dependent variable is a function of the product price.

To estimate the soft-budget constraint that many firms may face during this transition period, we

follow the literature and construct a measure that subtracts real tax and interest payments from

the firm's debt. The exports of firms were included here to measure competitive pressures and

success. The lagged policy variables in our study include ownership variables for the year privatized and whether the owners were primarily insiders or outsiders.[9] These variables are lagged once since the effects are unlikely to be instantaneous, but rather involve some restructuring, and also due to the variation in time of initiation over the year.

We follow the literature in extending the estimates beyond fixed effects which may be biased by estimating a growth equation based on equation one.

$$\Delta y_t = \lambda \Delta y_{t-1} + \gamma \Delta X_{it} + \beta \Delta P_{it-1} + \Delta \varepsilon_{it} \qquad\qquad (2)$$

Including the lagged dependent variable on the right hand side obviously brings up the question of simultaneity bias, as does the inclusion of capital and other possibly endogenous variables. Following the lead of Arellano and Bond (1991), this equation was estimated using instrumental variables.[10]

V. Results

The summary statistics in reported in Table 1 show how Bulgarian firms continued to make major adjustments during this period. Real value added for firms declined on average by almost 17 percent over the period of study, 1997-2001. This decline in value added was dwarfed by the drop in sales, labor, and capital over the same period.[11] However, given that all measures except capital showed a small increase in 2001 compared to 2000, there is some indication that additional major declines in overall firm size may not occur and that this dimension of firm adjustment may have run its course. Privatization over the five year period fell off dramatically over time.[12]

The results in Table 2 are estimates of equation one with different dependent variables. Column one in Table 2 are OLS firm fixed effect estimates of a production function, augmented with the year of privatization lagged once, lagged insider privatization, exports, a soft-budget measure and marketshare. The explanatory power of this equation is fairly high for this type of data and the capital and labor coefficients are significant and show decreasing returns to scale.[13]

Columns two through five use specifications found in the transition literature and again find capital highly significant in explaining firm performance over this period. The year of privatization (lagged) is found to have a positive impact on performance in the majority of cases, however without significance. Insider ownership was found to have a positive impact on firm performance in both cases where the coefficient is significant. Export orientation shows a significant negative impact in all specifications. Marketshare, as generally expected, shows a strong and positive impact across specifications.

The estimates in Table 3 of the growth of the performance indicators reveal a pattern somewhat similar to that found in Table 2. Columns one and four are the only specifications that satisfy the Sargan test for instrument validity and show a lack of first and second order autocorrelation, hence our comments on the results in Table 3 will focus on columns one and four. Decreasing returns to scale show up again with significance in column one.

With lagged values of the dependent included, privatization and, whether it is insider owned or not, appears to just impact significantly the average product of labor. Even though the insider dummy was estimated to have a positive impact on all performance indicators, except the average product of labor, statistically they have no power. Part of this lack of explanatory power could come from weak instrumentation, a problem which plagues this method (Hahn and Hausman, 2003). Of the other policy variables, marketshare is measured positively and

significantly as in Table two, while only the positive estimate for the soft-budget in average labor productivity shows up with any consequence.

VI. Conclusions, Policy Implications and Future Work

The Bulgarian industrial firms in this sample have seen tremendous changes since the transition has begun. The dramatic drops in sales, capital and labor have coincided with attempts to restructure and privatize these companies to allow them to be competitive in world markets, and the Euro zone in particular. In the results reported in this paper we use new data to examine the impact of privatization, competition, exports and soft-budgets on business performance.

In so doing we aim to respond to the argument that much work for transition economies is plagued by critical econometric weaknesses notably failure to control for omitted variables, selectivity bias and possible endogeneity of key variables including ownership (Djankov and Murrell, 2002). The panel nature of the new database enables us to introduce controls for omitted variables. Also the size and scope of the new data enable the use of more controls and better instruments than were available in many previous studies and to estimate models using dynamic panel data methods.

When this is done we find that the impact of privatization is of only marginal significance. Whether the firm is insider controlled or not, does not seem to play a crucial role for these firms. What does seem to be important is capital, whether measured directly or indirectly through the softbudget measure. This finding reflects the discovery in many transition countries that privatization by banks, investment funds, or foreign companies with access to relatively large amounts of capital have been found to have among the strongest impacts on firm performance. The dramatic decline in assets seen over a five year period here for these firms, the

chaos in the banking system found here as in other transition countries, makes it hardly

surprising that access to capital would have profound impacts on performance.

APPENDIX: DEFINITION OF VARIABLES

Value added = total labor costs + total capital costs
+ surplus = revenue - material costs.
This variable, measured in thousands of 2001 leva (in 2001 $1 approximately equalled 2 leva), was deflated using inflation figures from the European Bank for Reconstruction and Development (1994) and National Statistical Institute of Bulgaria (2002).
K = capital = Long-term material assets at the end of the year (2001 leva).
L = Average labor employed during the year.
Sales = Total Revenue at the end of the year (2001 leva).
Average Product of Labor = Sales divided labor (2001 leva).
Year Privatized = Dummy variable for the year that the firm initiated privatization.
Insider = Dummy variable for employee and managerial privatization. This variable when used in estimation was interacted with the year privatized.
Soft Budget Constraint = Total debt less tax and interest payments (2001 leva)

TABLE 1:BULGARIAN FIRMS:SUMMARY STATISTICS

Variable	Mean(%)	Std Dev	N
Value Added			
(000's of 2001 leva)			
Overall	3049	8299	1200
1997	3708	10871	240
1998	2833	6733	240
1999	2803	6898	240
2000	2816	7633	240
2001	3086	8692	240
Capital			
(000's of 2001 leva)			
Overall	253	422	1200
1997	321	520	240
1998	285	475	240
1999	250	437	240
2000	202	289	240
2001	208	334	240
Labor			
Overall	253	422	1200
1997	321	520	240
1998	285	475	340
1999	250	437	240
2000	202	289	240
2001	208	334	240
Sales			
(000's of 2001 leva)			
Overall	7082	22291	1200
1997	9933	33251	240
1998	7308	21620	240
1999	6203	16911	240
2000	5833	16963	240
2001	6132	18290	240
Year Privatized			
Overall	129		1200
1997	75		240
1998	20		240
1999	17		240
2000	14		240
2001	3		240

Insider Privatized			
Overall	41		1200
1997	17		240
1998	7		240
1999	6		240
2000	8		240
2001	3		240
Soft-Budget			
(000's of 2001 leva)			
Overall	773	9689	1200
1997	12	3891	240
1998	200	2572	240
1999	1108	12286	240
2000	1173	11829	240
2001	1374	12521	240
Exports			
(000's of 2001 leva)			
Overall	2137547	12183602	1200
1997	3452335	16004831	240
1998	2732296	13274757	240
1999	2016965	11774232	240
2000	1796160	12200728	240
2001	689980	4527039	240
Region 1	445		1200
Sofia	(37.1%)		
Region 2	165		1200
Plovdiv	(13.8%)		
Region 3	275		1200
Pleven	(22.9%)		
Region 4	105		1200
Pernik	(8.7%)		
Region 5	210		1200
Bourgas	(17.5%)		

Industry 1 Food	190 (15.8%)	1200
Industry 2 Textiles	160 (13.3%)	1200
Industry 3 Wood/Paper	120 (10.0%)	1200
Industry 4 Engineering	330 (27.5%)	1200
Industry 5 Electronics	90 (7.5%)	1200
Industry 6 Chemicals	85 (7.1%)	1200
Industry 7 Non-Metal	35 (2.9%)	1200
Industry 8 Mining	50 (4.2%)	1200
Industry 9 Other	140 (11.7%)	1200

TABLE 2:
PRIVATE AND INSIDER IMPACTS ON BULGARIAN FIRM PERFORMANCE
(Firm fixed effects. Dependent variables listed across the top are in logarithms. Absolute values of t-ratios are in parenthesis.)[14]

	Value Added	Value Added	Sales	Average Product of Labor	Labor
	(1)	(2)	(3)	(4)	(5)
Privatized Dummy $_{t-1}$	0.091 (1.45)	0.063 (0.97)	-0.005 (0.09)	0.065 (1.27)	-0.071 (1.58)
Insider Dummy $_{t-1}$	-0.003 (0.03)	0.048 (0.45)	0.162* (1.85)	0.033 (0.39)	0.129* (1.76)
Ln(Capital) $_t$	0.146*** (3.40)	0.246*** (5.70)	0.298*** (8.48)	0.048 (1.40)	0.251*** (8.52)
Ln(Labor) $_t$	0.396*** (8.67)	---	---	---	---
Exports	-9.8**x**e09*** (3.25)	-7.6**x**e09** (2.45)	-5.3**x**e09** (2.10)	-0.1**x**e08*** (4.38)	5.4**x**e09** (2.54)
Soft-Budget	-4.8**x**e-06* (1.94)	-6.4**x**e-06** (2.53)	-0.6**x**e06*** (2.70)	-1.4**x**e-06 (0.69)	-4.2**x**e-6** (2.43)
Market Share	45.39*** (10.92)	53.495*** (12.72)	58.124*** (16.93)	37.644*** (11.37)	20.480*** (7.12)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Number of Observations	1200	1200	1200	1200	1200
R^2	0.925	0.919	0.954	0.879	0.930

TABLE 3: PRIVATIZATION AND INSIDER IMPACTS ON BULGARIAN FIRM PERFORMANCE (1999-2001)

(Arrelano and Bond GMM estimates. Dependent variables listed across the top are changes in logarithms. Absolute values of t-ratios are in parenthesis.)[15]

	Δ Value Added	Δ Value Added	Δ Sales	Δ Average Product of Labor	Δ Labor
	(1)	(2)	(3)	(4)	(5)
Privatized Dummy $_{t-1}$	-0.022	-0.139	-0.042	0.147***	-0.014
	(0.85)	(0.73)	(1.31)	(5.40)	(0.62)
Insider Dummy $_{t-1}$	0.002	0.145	0.055	-0.151**	-0.037
	(0.05)	(0.17)	(0.48)	(2.27)	(0.77)
Δ y $_{t-1}$	-0.028	0.230	0.634**	0.216***	0.631***
	(0.36)	(0.72)	(8.70)	(2.90)	(7.51)
Δ Ln(Capital) $_t$	0.430***	0.528	0.353**	0.039	0.035
	(2.83)	(0.63)	(2.32)	(0.69)	(0.18)
Δ Ln(Labor) $_t$	0.500***	---	---	---	---
	(5.02)				
Δ Exports $_t$	-5.4**x**e-09	-8.8**x**e-08	-4.2**x**e-09	-2.0**x**e-09	-1.0**x**e-08
	(0.26)	(0.72)	(0.22)	(0.25)	(0.32)
Δ Soft Budget $_t$	0.00001	0.00003	8.8-06	7.0-06***	-0.00002
	(0.61)	(0.72)	(0.76)	(3.26)	(0.84)
Δ Market Share $_t$	40.007**	88.343	48.816**	32.838**	4.094
	(2.14)	(1.03)	(2.24)	(2.27)	(0.29)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Number of Observations	720	720	720	720	720
Sargan Test[16] χ^2 (df)	0.151	0.009	0.675	0.205	0.000
	(226)	(227)	(227)	(227)	(227)
AR (1)[17]	0.092**	0.119	0.366	0.137**	0.469
AR (2)	0.071**	0.001***	0.055**	0.012***	0.070**

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[1] In this respect the conclusions of Djankov and Murrell (2002) are at odds with findings from other surveys including Estrin and Wright, 1999, Carlin and Landesman, 1997, Aghion and Carlin, 1997 and Jones, 1999.

[2] For the ambiguous nature of the findings based on the available empirical evidence for transition economies, again see the references previously noted. In addition, studies of western firms with varying levels of employee ownership conclude that employee ownership typically has beneficial effects on enterprise performance. (For reviews see Blasi and Kruse, 1997 and Bonin et al., 1993).

[3] In addition powerful complementarities may be expected to exist when employee participation accompanies employee control. Goal alignment effects of employee participation (e.g. small group activities) are more subtle (but not necessarily weaker) than effects through ownership. Small group activities may provide valuable opportunities for both management and labor to learn about each other in a cooperative atmosphere and thus develop stronger trust. With stronger trust, sharing vital business information with labor will help convince labor that it is in their interest to improve productivity and firm performance. Various forms of employee participation may play an important role of providing employees a voice in the firm and thus reduce the costs of exit from the firm, saving specific human capital.

[4] For general accounts of early transition see Bristow (1996) and the essays in Jones and Miller (eds., 1997)

[5] For a review see Stoev (2002).

[6] For a review see Rutkowski (2002).

[7] Note that there remain 58 companies from the original 490 for which we cannot identify results with reasonable confidence at this time.

[8] The sampling design for enterprises operated at two levels. First, five groupings of the 320 municipal districts in Bulgaria were selected on the bases of geographic and urban variability, reproducing aggregate country-wide industry distributions, and minimizing data collection costs (Sofia, Pernik, Pleven, Burgas and Plovdiv). Second, within each of the five regions, population enumeration lists of SOE's were compiled by the Central Statistical Bureau. The number of sampled firms per region was set to reproduce the population proportions of firms per region in 1989 (the first year for which data were gathered). The five regions contained a population of 727 SOE's. Within each region, within major industry categories, firms were ordered by size and the approximate two- thirds largest were selected up to the desired sample size of about 500. Thus the sample contains 69% of the population of firms, but selected to reproduce population distributions by region and industry. In terms of employment, the sample SOE's contain about 95% of all SOE employees in the five regions in 1989.

[9] While theory indicates that finer disagggregation is preferred (e.g. to distinguish nonmanagerial from managerial insider ownership) unfortunately the available data on ownership configurations do not allow for this.

[10] All regression statistics were computed using Mathematica 4.2.

[11] The net effect of these adjustments is that most measures of productivity improved during the period. Thus Jones and Klinedinst (2003) report how real value added per worker grew steadily during 1997-2001.

[12] Curiously our measure of the soft budget constraint facing firms indicate that it grew in real terms during the period under review—a period generally regarded as being marked by the emergence of tighter discipline in financial markets as the environment changed following the establishment of the Currency Board.

[13] While the labor coefficients are low, compared to many other estimates for other firms during transition they are not unusually so.

[14] ***, **, and * indicating significance at the 1, 5 and 10% level, respectively.

[15] Instruments include lagged first differences variables in x matrix with firm and time dummies . Also included as instruments, from years before 1996, were exports, labor, unionization, exports for hard currency, and exports to former COMECON countries.

[16] Null hypothesis of the Sargan test is that over-identifying restrictions are valid. Pvalues are reported.

[17] AR(1) and AR(2) are tests for first-order and second-order serial correlation of the first-differenced residuals, asymptotically $N(0,1)$.